

WE CLAIM:

1. A cannula retractable medical collection device adapted to be used with a collection vial for collecting a blood sample therein, the collection vial having a front vial end and a pierceable stopper disposed on and covering the front vial end,
5 said device comprising:

a barrel having front and rear open ends opposite to each other in a longitudinal direction, and a surrounding barrel wall which interconnects and which is interposed between said front and rear open ends, said surrounding barrel wall including a front
10 smaller-diameter wall portion and a rear larger-diameter wall portion which are opposite to each other in the longitudinal direction and which are proximate to said front and rear open ends, respectively, said surrounding barrel wall having an inner barrel wall surface which surrounds an axis in the longitudinal
15 direction and which confines a passage communicated with said front and rear open ends, and an outer barrel wall surface opposite to said inner barrel wall surface in radial directions relative to the axis;

20 a cannula mount inserted into said passage from said rear open end, and slidable relative to said rear larger-diameter wall portion along the axis between front and rear positions to be proximate to said smaller-diameter wall portion and said rear open end, respectively, said cannula mount including a shell
25 member which has a skirt portion surrounding the axis and confining an accommodation chamber therein that is adapted for receiving the front vial end of the collection vial, and an

interconnecting portion opposite to said skirt portion in the longitudinal direction, said interconnecting portion defining an axial passageway which extends therethrough to be communicated with said accommodation chamber;

5 a double-ended needle cannula including front and rear needle segments which are opposite to each other in the longitudinal direction, and which have front and rear needle taper points, respectively, said rear needle segment extending into said accommodation chamber through said axial passageway along the
10 axis so as to enable said rear needle taper point to be adapted to prick the pierceable stopper when the front vial end of the collection vial is received in said accommodation chamber;

 a needle hub disposed to secure said front needle segment to said interconnecting portion such that said front needle
15 segment is in fluid communication with said rear needle segment, and such that when said cannula mount is in the front position, said front needle segment is placed in a position of use, where said front needle segment extends outwardly of said front open end for ready use, and when said cannula mount is in the rear
20 position, said front needle segment is placed in a disposal position, where said front needle segment retreats inwardly and rearwardly of said front open end;

 a releasably retaining member which is disposed to arrest axial movement of said cannula mount relative to said barrel when
25 said cannula mount is in the front position, and which includes

 a retaining hole formed in said outer barrel wall surface of said larger-diameter wall portion, and extending in a radial

direction through said inner barrel wall surface, and

an engaging peg disposed to extend in the radial direction,
and engageable in said retaining hole to establish an
interengagement between said larger-diameter wall portion and
said skirt portion such that movement of said cannula mount
at the front position is arrested; and

an actuator operable externally and disposed to enable said
engaging peg to be disengaged from said retaining hole so as to
permit the axial movement of said cannula mount to the rear
position.

2. The cannula retractable medical collection device of Claim 1,
wherein said larger-diameter wall portion has an elongated
guideway extending from said outer barrel wall surface through
said inner barrel wall surface in the radial direction, and
elongated from said retaining hole rearwardly and in the
longitudinal direction to terminate at a rear retaining end,
said engaging peg being disposed on and extending radially from
said skirt portion to terminate at a shifted end which extends
radially and outwardly of said outer barrel wall surface, and
being slidable along said elongated guideway from said
retaining hole to said rear retaining end when said cannula
mount slides from the front position to the rear position.
3. The cannula retractable medical collection device of Claim 2,
wherein said actuator is formed integrally with said shifted
end of said engaging peg, and is disposed outwardly of and is
slidable relative to said outer barrel wall surface.
4. The cannula retractable medical collection device of Claim 3,

wherein said elongated guideway has front and rear constricted regions which are formed immediately behind said retaining hole and immediately in front of said rear retaining end, respectively, such that once said engaging peg is forced through one of said front and rear constricted regions, movement of said engaging peg is arrested by virtue of a snap-fit in a corresponding one of said retaining hole and said rear retaining end so as to place said cannula mount in a corresponding one of the front and rear positions.

5. The cannula retractable medical collection device of Claim 4, wherein said larger-diameter wall portion further has a split which extends from said rear retaining end of said elongated guideway to said rear open end.

6. The cannula retractable medical collection device of Claim 3, wherein said retaining hole includes a proximate connecting end and a distal retaining end which are opposite to each other in a transverse direction relative to the longitudinal direction and which are proximate to and distal from said elongated guideway, respectively, such that said engaging peg is engaged in said distal retaining end to arrest movement of said cannula mount at the front position, and such that said actuator is operated to move said engaging peg from said distal retaining end to said proximate connecting end so as to permit slidable movement of said engaging peg along said elongated guideway.

7. The cannula retractable medical collection device of Claim 6, further comprising a biasing member which is interposed between

said skirt portion and said inner barrel wall surface, and which is disposed to bias said cannula mount toward the rear position.

8. The cannula retractable medical collection device of Claim 7, wherein said inner barrel wall surface of said larger-diameter wall portion and said skirt portion respectively have an annular shoulder and a flange which are opposite to and which confront each other in the longitudinal direction so as to define a biasing member receiving space therebetween, said biasing member being a coiled spring which has front and rear spring ends abutting against said annular shoulder and said flange, respectively, such that said coiled spring is compressed by said cannula mount when said cannula mount is in the front position.

9. The cannula retractable medical collection device of Claim 7, wherein said skirt portion and said inner barrel wall surface of said larger-diameter wall portion respectively have an annular flange and an edge which are opposite to and which confront each other in the longitudinal direction so as to define a biasing member receiving space therebetween, said biasing member being a coiled spring which has front and rear spring ends secured to said annular flange and said edge, respectively, such that said coiled spring is tensioned by said cannula mount when said cannula mount is in the front position.

10. The cannula retractable medical collection device of Claim 1, wherein said actuator includes a triggering member which is pivotally mounted on said outer barrel wall surface at a fulcrum point, and which includes a weight end formed integrally with

said engaging peg, and a power end disposed at an opposite side of said weight end relative to said fulcrum point so as to be actuated to move said engaging peg in the radial direction to withdraw from said passage,

5 said device further comprising a biasing member which is disposed between said skirt portion and said inner barrel wall surface to bias said cannula mount toward the rear position.

11. The cannula retractable medical collection device of Claim 1,
 wherein said front and rear needle segments are formed
10 integrally with each other.

12. The cannula retractable medical collection device of Claim 1,
 wherein said needle hub has a cannula holding passage extending
 along the axis and fluidly communicated with said axial
 passageway, said cannula holding passage including front and
15 rear passage segments for receiving said front and rear needle
 segments, respectively, and an intermediate portion
 interconnecting said front and rear passage segments and being
 light transmissible to permit viewing of blood flowing
 therethrough.

20 13. The cannula retractable medical collection device of Claim 1,
 further comprising a plurality of deformable protrusions which
 are disposed on said inner barrel wall surface of said
 larger-diameter wall portion proximate to said rear open end
 and which extend radially and inwardly so as to be adapted to
25 hold the collection vial by virtue of frictional engagement
 along the axis.

14. The cannula retractable medical collection device of Claim 1,

further comprising:

a catheter hub defining a duct therein, and including a sleeve portion which is detachably sleeved on said smaller-diameter wall portion, and a tip portion opposite to said sleeve portion along the axis; and

a tubular catheter having a proximate segment which is disposed in said tip portion and which extends along the axis to be communicated fluidly with said duct, and a distal segment which extends from said proximate segment along the axis to project outwardly of said tip portion, said front needle segment of said needle cannula extending through said tubular catheter to have said front needle taper point projecting outwardly of said distal segment of said tubular catheter.

15. The cannula retractable medical collection device of Claim 1, wherein said needle hub includes a sleeve portion which is detachably sleeved on said interconnecting portion from said front open end of said barrel along the axis, and which is light transmissible to permit viewing of blood flowing therethrough, and a holding portion which is opposite to said sleeve portion along the axis and which is disposed to hold said front needle segment of said needle cannula.

16. The cannula retractable medical collection device of Claim 15, further comprising:

a catheter hub defining a duct therein, and including a sleeve portion which is detachably sleeved on said holding portion of said needle hub, and a tip portion opposite to said sleeve portion along the axis; and

a tubular catheter having a proximate segment which is disposed in said tip portion and which extends along the axis to be communicated fluidly with said duct, and a distal segment which extends from said proximate segment along the axis to project outwardly of said tip portion, said front needle segment of said needle cannula extending through said tubular catheter to have said front needle taper point projecting outwardly of said distal segment of said tubular catheter.

17. The cannula retractable medical collection device of Claim 1, wherein said cannula mount is formed integrally with said needle hub, said inner barrel wall surface of said smaller-diameter wall portion being converged gradually from said larger-diameter wall portion towards said front open end.